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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/638,245	08/14/2000	Christopher M. Hanna	56233-139(THAT-3DVCN0	1379

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EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/638,245	HANNA, CHRISTOPHER M.	
	Examiner	Art Unit	
	Ping Lee	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-9 and 49-120* is/are pending in the application.

4a) Of the above claim(s) *7-9,49-59 and 94-103* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *60-93 and 104-120* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. Claims 87, 107, 108, 115 and 118 are rejected under 35 U.S.C. 102(b) as being anticipated by Todd ("A Compatible Digital Audio Format for Broadcast and Cable Television").

Regarding claims 87, 115 and 107, Todd discloses a system (see Fig. 5) for producing a digital composite modulated BTSC signal comprising a digital BTSC encoder arranged so as to generate a digital BTSC encoded signal, and a digital composite modulator (see abstract for additional information). Todd shows the modulator coupled to the BTSC encoder and generates the digital composite modulated BTSC signal. The demodulator inherently modifies the amplitude and phase of at least one of the digital audio signals in order to generate the separated L, R and SAP.

Regarding claims 108 and 118, the claimed carrier frequency is inherently included in the modulator performed according to BTSC standard.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 60-86, 88-93, 104-106, 109-114, 116, 117, 119 and 120 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art as illustrated in Fig. 1 in view of Holt et al (hereafter Holt) (US 4,803,727).

Regarding claims 82, 83, 86, 88, 89, 92, 104, 106 and 109-114, the prior art as shown in Fig. 1 illustrated a stereophonic encoder in accordance with the BTSC standard. However, Fig. 1 fails to show how to implement the encoder by using digital circuitry. Holt teaches that the analog band limiting filter would introduce noise to the signal and degrade the system performance (col. 1, lines 34-40). Although Holt discusses the system used in United Kingdom, one skilled in the art would have expected that the analog band limiting filter used in United States would produce the similar effect. Holt teaches that the analog signals are being converted to digital. The rest of the circuitry for providing the conditioned sum signal and for providing the conditioned difference signal processes the digital signals. In view of Fig. 1, one skilled in the art would modify the matrix (110) using a digital adder and subtractor, to modify the difference circuit using a digital difference circuit, and to modify the sum circuit using a digital sum circuit to process the digital input stereophonic signal to be further processed by digital band limiting filter. With a digital stereophonic input source, the input could be directly applied to the digital matrix. With analog stereophonic input source (claim 83), one skilled in the art would utilize any well-known ADC to convert the analog signal to digital input to be applied to the digital matrix. Thus, it would have been obvious to one of ordinary skill in the art to modify prior art as illustrated in Fig. 1 in view

of Holt by implementing Fig. 1 using digital circuitry in order to eliminate the noise caused by the analog circuitry.

Regarding claim 84, the claimed 75 μs preemphasis is inherently included according to BTSC standard.

Regarding claim 85, the prior art as shown in Fig. 1 shows an adaptive weighting system (134).

Regarding claims 93 and 105, the claimed carrier frequency is inherently included in the modulator as shown in Fig. 1 performed according to BTSC standard.

Regarding claim 116, with the prior art shown in Fig. 1 modified in view of Holt, the digital output signals are encoded in accordance with the BTSC standard.

Regarding claims 117 and 119, with the prior art shown in Fig. 1 modified in view of Holt, the generated output signals are BTSC encoded digital output signals.

Regarding claim 120, the prior art as shown in Fig. 1 shows an encoder, with the prior art shown in Fig. 1 modified in view of Holt, the first and second digital filter sections are configured as a part of the encoder.

Regarding claims 60, 63, 64, 67, 68, 69, 71-73 and 76-81, the prior art as shown in Fig. 1 intends to use an analog modulator to combine the conditioned sum signal and the conditioned difference signal to generate the composite signal to transmission. The same analog modulator could be used even though the conditioned sum signal and the conditioned difference signal are in digital format. One skilled in the art would use DACs to convert the conditioned sum signal and the conditioned difference signal respectively before applying them to the modulator. On the other hand, the conditioned

sum signal and the conditioned difference signal could be combined using well-known digital modulator before being converted to analog format for transmission. Either way, they would generate the composite broadcast signal. Thus, it would have been obvious to one of ordinary skill in the art to further modify the prior art as shown in Fig. 1 in view of Holt by utilizing well known DACs to convert the conditioned digital sum signal and the conditioned digital difference signal in order to use the analog modulator as intended to be used by the prior art as shown in Fig. 1 or using well-known digital modulator for combining the conditioned sum signal and the conditioned difference signal in order to use the analog transmission as intended to be used by the prior art as shown in Fig. 1.

Regarding claims 62, 66, 71 and 75, the claimed "preselected sample rate" is inherently included in a digital signal.

Regarding claims 61, 65, 70, 74, 90 and 91, although Holt fails to show DSP, Holt suggests the digital circuitry for perform the calculation necessary to condition the sum and difference signals. The prior art as shown in Fig. 1 indicates that numerous calculations are required to condition the sum and differences signals. A DSP, as well known to those in the art, would be able to efficiently and rapidly perform the calculations on digitized signals that were originally analog in form. The big advantage of the DSP lies in the programmability of the processor, allowing parameters to be easily changed. Thus, it would have been obvious to one of ordinary skill in the art to modify the prior art as shown in Fig. 1 in view of Holt by using a DSP and programming

the processor to perform the functions as required for conditioned the difference signal in order to efficiently and rapidly providing the conditioned difference signal.

Response to Arguments

5. Applicant's arguments filed 5/29/07 have been fully considered but they are not persuasive.

On p. 24, applicant argued that at 1996, the year that the present application was filed, the digital conversion of the conditioned sum and difference signals prior to modulation was not straight forward. Examiner would like to point out that the article by Todd was published in 1987, nine years prior to the filing of the present invention. At 1987, Todd already disclosed digital BTSC encoder to deliver digital audio. Technology advanced for nine more years. It is irrelevant whether the DSP was still a relatively new and expensive technology. As long as another inventor(s) made the invention before the applicant, then the present invention is not patentable.

On p. 25, applicant argued that the processing requirements of a BTSC encoder made it impossible to implement the encoder on a single Motorola 56002. The only claim that specifies a single IC is claim 90. It is noted that claim 90 does not claim single Motorola 56002. Furthermore, claim 90 specifies the elements on the single IC are the digital matrix unit, the difference channel processing unit, and the sum channel processing unit. The digital matrix unit is simply an adder and a subtractor to produce L+R and L-R respectively. The difference channel processing unit and the sum channel processing unit could be broadly interpreted as any element that process L+R and L-R.

The element could be a buffer, a filter to eliminate the noise, a capacitor, an inductor, a combination of capacitor and resistor and so on. A simple buffer or a filter does not require any sophisticated processing, so it does not require a lot of space on a single IC. The term "encoded digital difference channel signal" is met after the digital difference channel signal is being processed. One skilled in the art would have expected that a single IC could contain the claimed digital matrix circuit, the difference channel processing unit and the sum channel processing unit.

On p. 25, applicant argued that it is difficult at the time of the present invention was made to create a modulator. Todd, at 1987, discloses how to use QPSK modulator to generate a composite signal to deliver digital audio signal to TV.

On p. 26, applicant argued that present invention performs amplitude modulation of a digital subcarrier by a digital BTSC signal. However, the specific of the amplitude modulator of a digital subcarrier by a digital BTSC signal is not in the claim. It is irrelevant what is being disclosed in the specification.

On p. 27, applicant argued that the present invention as specified in claim 115 specifically recites that the digital composite modulator is positioned in the same path as the BTSC encoder. As shown in Fig. 5 of Todd, the BTSC encoder is in the same path as the digital composite modulator. The output from the modulator is responsively and as a function of the encoder.

On p. 28, applicant attacked Holt alone by stating that Holt does not teach anything about the BTSC method, and present invention transmitted and received signals that are analog over the intermediate medium. First of all, the rejections are

based on the prior art as shown in Fig. 1 in view of Holt, not Holt alone. Examiner does not state that Holt teaches a BTSC method, Holt teaches the benefit of transmitting digital audio signal for TV broadcasting. The claims do not specify that the analog signal is transmitted and received over the intermediate medium. Holt might solve a different problem from the present invention as disclosed in the specification, but it is irrelevant. It is the claimed invention that is being rejected.

From the lower half of p. 29 through the upper half of p. 30, applicant argued that it is very difficult to implement digital adaptive signal weighting system at 1996. Well, 9 years ago at 1987, Todd discloses the digital BTSC encoder, which encodes the signals according to BTSC standard that includes adaptive signal weighting system.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ping Lee
Primary Examiner
Art Unit 2615

pwl